

Application SN 10/656,661
Amendment dated August 1, 2006
Reply to Office Action of February 1, 2006

Amendments to the Claims:

Please replace all prior versions of the claims with the following claims:

1. (withdrawn) A system for fabricating polymer microparticles, comprising:

- (a) a stamp, wherein said stamp further comprises micro-structures on at least one side of said stamp for receiving a layer of said polymer;
- (b) a substrate; and
- (c) a layer of dissolvable material covering said substrate.

2. (withdrawn) The system of claim 1, further comprising a compression means for compressing said stamp against said substrate.

3. (withdrawn) The system of claim 1, further comprising a solvent for dissolving said layer of dissolvable material.

4. (withdrawn) The system of claim 3, further comprising a reservoir for said solvent.

5. (withdrawn) The system of claim 1, wherein said polymer is polypropyl methacrylate, polylactic-co-glycolic acid, polycaprolactone, polymethyl methacrylate, or polystyrene.

6. (withdrawn) The system of claim 1, wherein said stamp is a polydimethyl siloxane stamp.

7. (withdrawn) The system of claim 1, wherein said micro-structures further comprise a plurality of micro-pillars.

8. (withdrawn) The system of claim 1, wherein said micro-structures further comprise a plurality of micro-wells.

9. (withdrawn) The system of claim 1, wherein said substrate is a glass slide.

Application SN 10/656,661
Amendment dated August 1, 2006
Reply to Office Action of February 1, 2006

10. (withdrawn) The system of claim 1, wherein said layer of dissolvable material further comprises polyvinyl alcohol.

11. (withdrawn) The system of claim 1, wherein said layer of dissolvable material further comprises a water soluble ink, glucose, chitosan, or polyethylene glycol.

12-35 (cancelled)

36. (new) A process for producing generally flat thermoplastic polymer microparticles having predetermined lateral shapes, the process comprising forming an array of free-standing polymer microparticles by soft lithography on the sacrificial layer of a substrate comprising a base layer and a sacrificial layer on the base layer, and

contacting the sacrificial layer with a liquid to release the polymer microparticles.

37. (new) The process of claim 36, wherein the thermoplastic polymer microparticles are produced by

applying a solution of a polymer to the patterned face of an elastomeric stamp defining a pattern of micro-pillars and micro-wells to form a thin continuous coating of the polymer on the patterned face,

contacting the polymer-coated face of the stamp with the sacrificial layer of the substrate so that the polymer on the micro-pillars or in the micro-wells transfers to the sacrificial layer, thereby forming the free-standing polymer microparticles on the sacrificial layer,

dissolving the sacrificial layer in the liquid, thereby releasing the free-standing polymer microparticles into the liquid, and

recovering the free-standing polymer microparticles from the liquid.

38. (new) The process of claim 37, wherein the polymer is at least one of polypropyl methacrylate, polylactic-co-glycolic acid, polycaprolactone, polymethyl methacrylate, polystyrene, polymethacrylic acid and sulfonated polyaniline.

Application SN 10/656,661
Amendment dated August 1, 2006
Reply to Office Action of February 1, 2006

39. (new) The process of claim 38, wherein the sacrificial layer is made from at least one of polyvinyl alcohol, a water soluble ink, glucose, chitosan, or polyethylene glycol.

40. (new) The process of claim 39, wherein the sacrificial layer is made from polyvinyl alcohol.

41. (new) The process of claim 37, wherein the polymer on the micro-pillars is transferred to the sacrificial layer.

42. (new) The process of claim 37, wherein the polymer in the micro-wells is transferred to the sacrificial layer.

43. (new) The process of claim 42, wherein multiple layers of different polymers are formed in the micro-wells.

44. (new) The process of claim 42, wherein the polymer on the micro-pillars is removed before the polymer in the micro-wells is transferred to the sacrificial layer.

45. (new) The process of claim 37, wherein the free-standing polymer microparticles are recovered from the liquid by desiccating or filtering.

46. (new) The process of claim 37, wherein the liquid is water.

47. (new) The process of claim 37, wherein the elastomeric material is polydimethyl siloxane